

## ABSTRACT

A. [1] A trajectory of motion of the mechanical element is designed by using a three-dimensional curve (referred to as a three-dimensional clothoid curve) in which each of a pitch angle and a yaw angle in a tangential direction is given by a quadratic expression of a curve length or a curve length variable.

B. A trajectory of a machine tool or a contour shape of a workpiece is expressed by using a three-dimensional curve (referred to as a three-dimensional clothoid curve) in which each of a pitch angle and a yaw angle in a tangential direction is given by a quadratic expression of a curve length or a curve length variable to control motion of the machine tool based on the three-dimensional curve.